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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,838	07/08/2003	John M. Harris	CE10878R	9157

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MOTOROLA, INC.
1303 EAST ALGONQUIN ROAD
IL01/3RD
SCHAUMBURG, IL 60196

EXAMINER

RAMOS FELICIANO, ELISEO

ART UNIT	PAPER NUMBER
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2687

DATE MAILED: 10/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/614,838

Applicant(s)

HARRIS ET AL.

Examiner

Eliseo Ramos-Feliciano

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-15 and 24-30 is/are rejected.
- 7) ☒ Claim(s) 5, 16-23 and 31-35 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 08 July 2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The references listed in the Information Disclosure Statement filed on July 8, 2003 have been considered by the examiner (see attached PTO-1449 form).

Drawings

2. The drawings are objected to because:

FIG. 2, element 214 reads "PCH LOADING LEVEL < PAGING THRESHOLD", but should read --PCH LOADING LEVEL > PAGING THRESHOLD-- (note that the change is ">") according to the specification page 8, lines 15-16 which in reference to element 214 teaches "above" (>); and

FIG. 3, element 320 reads "BEGIN", but should be --END-- according to the specification page 8, line 31.

Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted

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by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities: the reference to related applications in page 1, lines 5-15 should identify each application by application number, and include current status, such as: pending, abandoned, or patented and patent number.

Correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1-2, 6, 8, 10-11, 24, 26, and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Murto (US Patent Number 5,966,662).

Regarding **claim 1**, Murto discloses a method for signaling based on paging channel loading (column 2, lines 6-11) including:

determining that an MS needs to be paged (see Figure 7, step 70);

determining a paging channel loading level for each of a plurality of cells (base stations) (see column 2, lines 12-18, abstract, and Figure 7, steps 71-72)

paging the MS only in those cells (base stations) of the plurality of cells in which the paging channel loading level is below a paging threshold ("load level lower than a predetermined

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threshold”, “lightly loaded base stations”; see abstract, column 2, lines 16-18 & 29-30, and Figure 7, step 74).

However, Murto fails to disclose the limitation “in which the MS may be located” in the main embodiment explained above.

Nevertheless, Murto discloses as prior art that the network typically knows the cells (base stations) in which the MS may be located and that it is not reasonable to transmit the paging message via all base stations (cells) of the entire system, but on those of higher probability of being located, generally called location area (see column 1, lines 26-33).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Murto’s main embodiment discussed above so as to determine a paging channel loading level for each of a plurality of cells *in which the MS may be located*, because as the same Murto states it is not reasonable to transmit the paging message via all base stations of the entire system, but on those of higher probability of being located (generally called location area).

Regarding **claim 2**, Murto discloses everything claimed as applied above (see *claim 1*). In addition, the plurality of cells comprises cells in a paging zone of the MS. For example, the determined lightly loaded base stations (cells) can be characterized as a paging zone as claimed because they constitute the higher priority paging group (see Figure 7, step 72, and the abstract).

Regarding **claim 6**, Murto discloses everything claimed as applied above (see *claim 1*). In addition, Murto discloses that when a page response is received from the MS in a cell, a call (traffic) is established (column 4, lines 4-13, 56-58, column 6, lines 59-62, and Figure 7, steps

75-76). Inherently, sending channel assignment messaging to the MS in the cell to assign a traffic channel to the MS.

Regarding **claim 8**, Murto discloses everything claimed as applied above (see *claim 1*). In addition, Murto teaches that the paging message may be placed in a queue to wait (column 2, lines 36-37, column 7, lines 20, and column 8, line 10). Thus including determining that the service triggering the page is delay tolerant, as claimed. For the paging message being able to be placed in a queue to wait, the service must be delay tolerant and the system must support such feature prior to the generation of the paging message. Therefore, paging the MS only in those cells of the plurality of cells in which the paging channel loading level is below a paging threshold *after* determining that the service triggering the page is delay tolerant is met by Murto.

Regarding **claim 10**, Murto discloses everything claimed as applied above (see *claim 1*). In addition, Murto discloses that when no page response is received from the MS after paging in only those cells of the plurality of cells in which the paging, channel loading level is below a paging threshold, paging the MS in at least one of those cells of the plurality of cells (base stations) in which the paging channel loading level is above (heavily loaded) the paging threshold. (See column 2, lines 34-35).

Regarding **claim 11**, Murto discloses everything claimed as applied above (see *claim 1*). In addition, Murto discloses that when no page response is received from the MS after paging in only those cells of the plurality of cells in which the paging channel loading level is below a paging threshold, paging the MS in those cells of the plurality of cells in which the paging channel loading level is above the paging threshold. (See column 2, lines 34-35).

Regarding **claims 24, 26 and 28**, they are the corresponding apparatus claims of method claims 1, 6, and 10, respectively. The same reasons explained above are applied. The wireless transceiver equipment (for example, BTS1-BTS4, Figure 1) adapted to support signaling transmission and reception for each cell of the plurality of cells and the communications controller (for example, BSC1-BSC2, Figure 1) adapted to perform the claimed steps is also included in Murto.

6. **Claims 3-4, 7, 25, and 27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Murto (US Patent Number 5,966,662) in view of Hult et al. (US Patent Number 5,822,700).

Regarding **claims 3-4**, Murto discloses everything claimed as applied above (see *claim 1*). Murto further discloses that when a page response is received from the MS in a cell a call is established in a normal manner (column 4, lines 4-13 and 56-58). However, Murto fails to disclose sending short messaging to the MS in the cell.

Hult et al. discloses sending short messaging (SMS) to a MS (cellular telephone) in a cell. (See 102 in Figure 2 and the abstract).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Murto to send short messaging to the MS in the cell for the advantage of enhancing subscriber services.

Regarding **claim 7**, Murto discloses everything claimed as applied above (see *claim 1*). Murto further discloses that when a page response is received from the MS in a cell a call is established in a normal manner (column 4, lines 4-13 and 56-58). However, Murto fails to disclose sending short messaging to the MS via the traffic channel.

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Hult et al. discloses sending short messaging (SMS) to a MS (cellular telephone) in a cell via the traffic channel. (See 102 and 128 in Figure 2 and the abstract).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Murto to send short messaging to the MS via the traffic channel for the advantage of enhancing subscriber services.

Regarding **claims 25 and 27**, they are the corresponding apparatus claims of method claims 3 and 7, respectively. The same reasons explained above are applied. The controller (for example, BSC1-BSC2, Figure 1) adapted to perform the claimed steps is included in Murto as explained above.

7. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over Murto (US Patent Number 5,966,662) in view of Mangal et al. (US Patent Application Number 2003/0148785).

Regarding **claim 9**, Murto discloses everything claimed as applied above (see *claim 8*). In addition, Murto discloses determining that the service is an incoming call (inherently voice call) as claimed (see column 1, line 25-27), for example, from subscriber A (column 4, lines 12-13).

However, Murto fails to disclose that the MS has a slot cycle index of less than two as claimed.

Mangal et al. discloses that a slot cycle index reflects which time slot(s) of the air interface paging channel will carry a page signal when the mobile station is being paged. A slot cycle index 2 would provide a page signal every 5.12 seconds. So, when operating at slot cycle index 2, a mobile station would have to wake up and check the paging channel far less often, thereby using less battery power (paragraph 0071).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Murto so that the MS has a slot cycle index of less than two as claimed for the advantage of using less battery power as taught by Mangal et al.

8. **Claims 12-15 and 29-30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hult et al. (US Patent Number 5,822,700) in view of Murto (US Patent Number 5,966,662).

Regarding **claim 12**, Hult et al. discloses a method for signaling based on paging channel loading (control channel loading) including:

determining that short messaging needs to be sent to an MS (see Figure 2, step 102);

determining a paging channel (control channel - column 3, lines 43-44) loading level (capacity) for each of a plurality of cells in which the MS may be located (see Figure 2, steps 108, 110, 112, 116);

transmitting the short messaging to the MS in those cells of the plurality of cells in which the paging channel loading level is below a short messaging threshold (see Figure 2, steps 112, 116, 120).

However, Hult et al. fails to disclose the limitation transmitting the short messaging to the MS only in those cells of the plurality of cells in which the paging channel loading level is below a short messaging threshold.

Murto discloses a method for signaling based on paging channel loading wherein a paging message is first transmitted for a MS via lightly loaded base stations (cells of the plurality of cells in which the paging channel loading level is below a short messaging threshold) for the advantage of traffic load control (see the abstract), since it is not reasonable to transmit the paging message via all base stations (cells) of the entire system (see column 1, lines 26-29).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Hult et al. for transmitting the short messaging to the MS only in those cells of the plurality of cells in which the paging channel loading level is below a short messaging threshold for the advantage of traffic load control since it is not reasonable to transmit the paging message via all cells of the entire system as taught by Murto.

Regarding **claims 13 and 14**, Hult et al. and Murto disclose everything claimed as applied above (see *claim 12*). In addition, Hult et al. discloses that the short messaging comprises messaging from the group consisting of data burst messaging (DBM), short message service (SMS) messaging, short data burst (SDB) messaging, a data packet, and notification messaging. (See title and Figure 2, step 102). For example, SMS. The notification messaging can be, for example, location registration signals (presence notification messaging).

Regarding **claim 15**, Hult et al. and Murto disclose everything claimed as applied above (see *claim 12*). In addition, Murto discloses that when no response is received from the MS after transmitting the messaging to the MS only in those cells of the plurality of cells in which the paging channel loading level is below the threshold, transmitting the messaging to the MS in at least one of those cells of the plurality of cells in which the paging channel loading level is above the threshold. (See column 8, lines 9-13, column 6, lines 45-47, column 2, lines 34-35).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Murto for transmitting the messaging to the MS in at least one of those cells of the plurality of cells in which the paging channel loading level is above the threshold when no response is received for the purpose of performing a successful communications connection.

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Regarding **claims 29 and 30**, they are the corresponding apparatus claims of method claims 12 and 15, respectively. The same reasons explained above are applied. The wireless transceiver equipment adapted to support signaling transmission and reception for each cell of the plurality of cells and the communications controller adapted to perform the claimed steps is also included in Hult et al. and Murto (see Figure 1 of each).

Allowable Subject Matter


9. **Claims 5, 16-23, and 31-35** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. Any inquiry concerning this communication from the examiner should be directed to Eliseo Ramos-Feliciano whose telephone number is 703-305-0078. The examiner can normally be reached from 8:00 a.m. to 5:30 p.m. on 5-4/9 1st Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester G. Kincaid, can be reached on (703) 306-3016. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


ELISEO RAMOS-FELICIANO
PATENT EXAMINER

ERF/erf

October 14, 2004